

In The Claims:

Claims 1-9 (Cancelled).

10. (Currently Amended) A method for monitoring the environment within a microfluidic device, comprising the steps of:  
immobilizing a monitor structure in a channel of the microfluidic device by:  
mixing a dye in a pre-polymer mixture and providing the same as a pregel;  
injecting the pregel in the channel of the microfluidic device; and  
polymerizing the pregel in the channel to form the monitor structure; and  
passing fluid over the monitor structure in the channel;  
whereby the monitor structure generates a visual display independent of the size of the monitor structure in response to exposure to a parameter of the fluid having a predetermined value.

Claims 11-12 (Cancelled).

13. (Currently Amended) The method of claim 10 [12] comprising the additional step of cleaning the channel of the microfluidic device after polymerizing the pregel.

14. (Currently Amended) The method of claim 10 [12] wherein the pre-polymer mixture includes a hydrogel, a photo-initiator and a cross-linker.

15. (Currently Amended) The method of claim 10 [12] wherein the pre-polymer mixture includes 2-hydroxy ethyl methacrylate (HEMA), acrylic acid (AA), ethylene glycol dimethacrylate (EGDMA), and 2,2-dimethoxy-2-phenylacetophenone (DMPA).

15. (Cancelled).

16. (Currently Amended) The method of claim 10 [11] wherein the dye is congo red.
17. (Original) The method of claim 10 comprising the additional steps of:  
providing a second monitor structure in the channel of the microfluidic device; and  
passing fluid over the second monitor structure in the channel;  
whereby the second monitor structure generates a visual display in response to exposure to a  
second parameter of the fluid having a predetermined value.
18. (Original) A method for monitoring the environment within a microfluidic device,  
comprising the steps of:  
mixing a dye in a pre-polymer mixture and providing the same as a pregel;  
injecting the pregel into a channel of the microfluidic device;  
polymerizing the pregel in the channel to form a monitor structure; and  
passing fluid over the monitor structure in the channel such that the dye changes color in  
response to a parameter of the fluid having a predetermined value.
19. (Original) The method of claim 18 wherein the step of polymerizing the pregel  
includes the step of immobilizing the dye in the polymerized pre-polymer mixture.
20. (Original) The method of claim 18 wherein the monitor structure changes dimension  
in response to a predetermined value of a second parameter of the fluid.
21. (Original) The method of claim 18 comprising the additional step of cleaning the  
channel of the microfluidic device after polymerizing the pregel.
22. (Original) The method of claim 18 wherein the pre-polymer mixture includes a  
hydrogel, a photo-initiator and a cross-linker.

23. (Original) The method of claim 18 wherein the pre-polymer mixture includes 2-hydroxy ethyl methacrylate (HEMA), acrylic acid (AA), ethylene glycol dimethacrylate (EGDMA), and 2,2-dimethoxy-2-phenylacetophenone (DMPA).

24. (Original) The method of claim 18 wherein the dye is phenolphthalein.

25. (Original) The method of claim 18 wherein the dye is congo red.

26. (Original) The method of claim 18 further comprising the additional step of passing fluid over a second monitor structure provided in the channel such that the second monitor structure changes color in response to a second parameter of the fluid having a predetermined value.

27. (Original) The method of claim 26 comprising the additional steps of:  
mixing a second dye in a second pre-polymer mixture and providing the same as a second pregel;  
injecting the second pregel into the channel of the microfluidic device; and  
polymerizing the second pregel in the channel to form the second monitor structure.

28. (Currently Amended) The method of claim 10 [11] wherein the dye is phenolphthalein.

29. (Previously Presented) A microfluidic device for providing a visual display in response to a change in a predetermined parameter of a fluid-flowing therethrough, comprising:  
a body defining a channel for accommodating the flow of the fluid therethrough;  
a monitor structure retained in the channel of the body at a user desired position within the flow of fluid, the monitor structure having a color; and  
an immobilized dye entrapped within the monitor structure, the dye changing the color of the monitor structure in response to a change in the predetermined parameter of the fluid[.] ; and wherein:  
the monitor structure includes a polymerized mixture; and  
the immobilized dye is a first color in response to the predetermined parameter of the fluid having a first value and a second color in response to the predetermined parameter of the fluid having a second value.

30. (Cancelled)

31. (Currently Amended) The microfluidic device of claim 29 [30] wherein the monitor structure assumes the color of the dye in response to the predetermined parameter of the fluid.

32. (Currently Amended) The microfluidic device of claim 29 [30] wherein the mixture includes a hydrogel, a photo-initiator, and a cross-linker.

33. (Previously Presented) The microfluidic device of claim 29 wherein the dye is phenolphthalein.

34. (Previously Presented) The microfluidic device of claim 29 wherein the dye is congo red.

35. (Currently Amended) The microfluidic device of claim 29 wherein [the monitor structure includes a polymerized mixture,] the polymerized mixture [having] has a first dimension in response to the predetermined parameter of the fluid having the first value and [of] a second dimension in response to the predetermined parameter of the fluid having the second value.

36. (Previously Presented) The microfluidic device of claim 29 further comprising:  
a second monitor structure retained in the channel of the body at a second user desired position within the flow of fluid, the second monitor structure having a color; and  
a second immobilized dye entrapped within the second monitor structure, the second dye changing the color of the second monitor structure in response a second predetermined parameter of the fluid.